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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,662	07/13/2001	Yasuhito Inagaki	09792909-5081	5976

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EXAMINER

KORNAKOV, MICHAIL

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/905,662

Applicant(s)

INAGAKI ET AL.

Examiner

Michael Kornakov

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 1-5, 9-11 and 14-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-8, 12 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-17 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Applicants' Amendment, Paper No. 10 has corrected the drawings and Specification as indicated in the previous Office Action, and therefore objections to drawings and specification are withdrawn.
2. Claims 1-17 are currently pending. Claims 1-5, 9-11 and 14-16 are withdrawn from consideration as being drawn to non-elected invention.
3. Newly submitted claim 17 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the new claim 17 recites an **apparatus comprising gas feeding means and cleaning bath**, while the initially examined set of claims recites **liquid feeding means and cleaning bath**. Since the claimed apparatus has **only two major structural elements**, i.e. **cleaning bath and feeding means**, these two apparatuses, if initially presented, would have been subjected to a restriction requirement as non-related apparatuses. These two apparatuses are not disclosed as being capable of use together, have different modes of operations (one utilizes cleaning with gas, the other employs cleaning with liquid), different functions (i.e. feeding either liquid, or feeding gas), and different effects.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 17 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

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4. Claim 6 has been amended in Paper No.10 as follows: ammonium fluoride and water have been removed from the scope of suitable liquids.

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 6 **stands** provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 29 and claim 33, of copending Application No. 09/985,396. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Claims 29 and claim 33 of copending Application 09/985,396 recite an apparatus for cleaning a substrate with an aqueous solution of ammonium fluoride and hydrogen fluoride at certain ratios, the said apparatus comprising a **substrate cleaning bath** stored with said cleaning solution, and a **replenishing means** for replenishing the cleaning solution in said substrate cleaning bath with water.

The instant claim 6 recites a substrate cleaning apparatus, which comprises **essentially the same structural elements**, namely a substrate cleaning bath with cleaning liquid comprising at least aqueous solution of ammonium fluoride, and liquid feeding means (reads on "replenishing means") for feeding a liquid comprising at least water.

Having **essentially the same structural elements**, as described in claims 29 and 33 of copending Application, the apparatus of the instant claim 6 is fully capable of

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storing aqueous solutions of ammonium fluoride and hydrogen fluoride with certain wt.% ratios and replenish these solutions with water, as provided by claims 29 and 33 of copending Application. Furthermore, claim 6 of the instant Application and claims 29 and 33 of copending Application 09/985,396 recite chemical species for an intended use of the apparatus, and the courts have ruled that expressions relating an apparatus to the **contents thereof** during an intended operation are of no significance in determining the patentability of the apparatus claim. *Ex parte Thibault*, 1 64 USPQ 666, 667 (Bd. App. 1 969).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claims 6 and 7 stand rejected under 35 U.S.C. 102(e) as being anticipated by Verhaverbeke et al (U.S. 6,261,845).

Verhaverbeke teaches apparatus **for wet processing a substrate**, comprising a processing **vessel with treatment solution (reads on substrate cleaning bath of the instant claim 6)**, which can be utilized for cleaning or etching purposes, and wherein the treatment solution can be provided in static regime for soaking the substrate (col. 1, lines 8-13; col.5, lines 26-27; col.8, lines 15-20; col. 10, lines 17-29; col. 13, lines 11-14). The treatment solution of Verhaverbeke comprises ammonium fluoride or ammonium fluoride buffered hydrofluoric acid (col.10, lines 27, 28, col.11, lines 25-29). The apparatus of Verhaverbeke also comprises **liquid supply system and means for directing the treatment solution** (reads on the liquid feeding means of the instant

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claim 6), which may include water (col.10, line 44-49) and ammonium fluoride, to the processing vessel (col.7, lines 22-27; col. 10, lines 17-19; Fig. 1); measuring means for measuring flow rates in the cleaning liquid processing stream (reads on "characteristics of the cleaning liquid", as instantly recited) (col.6, lines 53-55); processing system for receiving the measured flow rates, manual or computerized calculating the concentration of chemicals (reads on "arithmetically processing a signal", as instantly claimed) (col.6, lines 45-52) and providing a subsequent processing stream in response to the calculated concentration of chemicals in the wet processing stream (col.18, lines 31-37). Therefore, all the structural limitations of apparatus as per the instant claims 6 and 7 are met by Verhaverbeke. Since all structural elements of the instant claims 6 and 7 are expressly met by Verhaverbeke, then the liquid feeding means of Verhaverbeke are inherently fully capable of feeding aqueous ammonia as instantly claimed.

It is noted here that the liquids, such as ammonia and aqueous ammonia are NOT interpreted as structural limitations of apparatus, because as stated in MPEP 2114 claims directed to an apparatus must be distinguished from the prior art ***in terms of structure rather than function***. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); or In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard

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Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). In the instant case the identity of structural elements of the claimed apparatus and that of Verhaverbeke defines the inherency of its functional ability to sustain the liquids as instantly claimed.

8. In the alternative claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verhaverbeke.

Claims 6 and 7 recite chemical species for an intended use of the apparatus, and the courts have ruled that expressions relating an apparatus to the contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim. Ex parte Thibault, 1 64 USPQ 666, 667 (Bd. App. 1 969). In case that one skilled in the art would have attributed the ammonia and aqueous ammonia to the structural elements of the claimed apparatus, then since Verhaverbeke's feeding means supply ammonium fluoride and hydrofluoric acid, which are corrosive liquids, it would be obvious to those skilled in the art that these same feeding means would be operable with other corrosive liquids, such as aqueous ammonia with the reasonable expectation of success.

9. Claims 6, 7, 8, 12 and 13 stand rejected under 35 U.S.C. 102(e) as being anticipated by JP8-334461.

JP'461 describes wet treatment apparatus, which comprises substrate cleaning bath 1, containing aqueous solution of ammonium fluoride and hydrogen fluoride

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(EQ); liquid feeding means for feeding aqueous solution of ammonium fluoride (14); means for measuring refraction index of hydrofluoric acid (4) and an electronic computing system (7,12), which controls feeding from ammonium fluoride feeding means to substrate treatment bath, thus keeping the constant composition of the treatment reagent EQ (see Abstract; Fig.1 and 2; paragraphs 0005-0007, 0011, 0013-0016).

Therefore, **all the structural limitations** of apparatus as instantly claimed are met by JP'461.

10. In the alternative claims 6, 7, 8, 12 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over JP'461.

In case that ones skilled in the art would have attributed the ammonia and aqueous ammonia to the structural elements of the claimed apparatus, then since JP'461 teaches the feeding means that are identical to the instantly claimed feeding means, for supply of ammonium fluoride and hydrofluoric acid, which are corrosive liquids, it would be obvious to those skilled in the art that these same feeding means would be operable with other corrosive liquids, such as aqueous ammonia with the reasonable expectation of success. Consult also Ex parte Thibault, 1 64 USPQ 666, 667 (Bd. App. 1 969), as discussed above.

Response to Arguments

11. Applicant's arguments filed September 23, 2003 have been fully considered but they are not persuasive.

With regard to Verhaverbeke, the crux of Applicants arguments appears to hinge on the present amendment that excludes water and ammonium fluoride from the scope of liquids that can be supplied by the claimed "liquid feeding means". Further, in their arguments Applicants reiterate the importance and "...effectiveness of such liquids as ammonia or aqueous ammonia, as liquid feeding means..." (see bottom paragraph of page 8, paper No.10). In response to this, it is first noted that neither ammonia, nor liquid ammonia are liquid cleaning means. From the instant specification, it is clearly seen that liquid cleaning means are structural limitations of apparatus, for instance page 9 of specification, bottom paragraph, discusses structural elements of apparatus, presented in Fig.5, wherein a bath (21), and a circulation pump (22), which is a liquid feeding means, are identified. Also on this figure the other structural elements, such as constant delivery pump (23) and controller (24) are shown. Applicants are reminded that the apparatus is instantly claimed, and what defines the patentability of apparatus, are its **structural elements, not the functional elements**. This issue is discussed in details in the present communication, paragraphs 11-14, and references are made to corresponding sections of MPEP and Case Laws.

Furthermore, it is noted that "An Examiner has the duty to police the claim language by giving it the broadest possible interpretation", *Springs Window Fashions LP v. Novo Industries L.P.*, 65, USPQ 2d 1826, 1830 (Fed. Cir. 2003), and that the PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art...". In *re Morris*, 44 USPQ 2d 1023,1027 (Fed. Cir. 1997). In light of the above the

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liquid feeding means are also interpreted **as structural limitations** of the claimed apparatus.

Therefore, Verhaverbeke anticipates all structural elements of the claimed apparatus.

With regard to JP'461 reference, Applicants' arguments reside in contention that liquid feeding means for ammonia or aqueous ammonia as instantly claimed are allegedly different from the liquid cleaning means of JP'461. This is not found persuasive, because the liquid feeding means of JP'461, structurally identical to the liquid feeding means of the instant claims. Applicants arguments "... JP'461 does not teach or suggest liquid feeding means **for feeding** (emphasis added-M.K.) a liquid comprising at least one selected from the group of ammonia and aqueous ammonia" **recognize** that feeding of specific liquid **is a function performed by a specific structural element of apparatus**, not the structural element per se. As was noted above claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). Therefore, JP'461 does anticipate the instantly claimed structural elements of apparatus.

With regard to JP'891, Applicants arguments are moot, since the reference **is removed from the scope of rejection**. JP'891 teaches the feeding means that are suitable for water, and since water is removed from the scope of claim 6 by the present amendment the structural elements of JP'891 may not necessarily be capable of carrying the corrosive liquids.

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12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (703) 305-0400. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (703) 308-4333. The fax phone number for the organization where this application or proceeding is assigned is (703) 872 9310.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 2450.



Michael Kornakov
Examiner
Art Unit 1746

December 14, 2003